Question

What is cosmic radiation? Is it dangerous?

Asked by: George T.

Answer

Cosmic radiation is a collection of many different types of radiation from many different
When people speak simply of 'cosmic radiation' they are usually referring specifically to
microwave background radiation. This consists of very, very low energy photons (energ
Kelvin) whose spectrum is peaked in the microwave region and which are remnants fro
the universe was only about 200,000 years old. There are also very old remnant neutri
radiation. Neutrinos pass through just about everything with no effect so they are harml
are too low in energy to be dangerous.

On top of these there are higher energy particles that are being created constantly by a
in the universe. Photons of all different energies/wavelengths are being created by our
quasi-stellar objects, black-hole accretion disks, gamma-ray bursts and so on. These o
produce high-energy massive particles such as electrons, muons, protons and anti-pro
energy particles are potentially dangerous, but most of these particles never make it to
are deflected by magnetic fields between us and the source, or they interact with other
decay in flight.

The particles that do make it to the earth interact with our atmosphere, which acts as a
The high-energy cosmic rays bombard us all the time, but they interact quickly, produci
much lower energy which impact the earth harmlessly. If this was dangerous to us, we
to discuss these things! Some particles, like neutrinos and high energy muons, are pas
the time, but they interact so weakly that they have no effect on our bodies. Of course,
space without the protection of our atmosphere then we would need some other type o
the radiation (spacesuits and protective covering on our spacecrafts).

The radiation to worry about, of course, is the 'cosmic' radiation produced by our sun. T
type of cosmic radiation known to adversely affect us and that's UV radiation from our s
skin cancer in millions of people every year.. Again, our atmosphere serves as a shield
photons do make it through -- and without that protective ozone layer which blocks thes
all going to need a lot more sunscreen!

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